March 4, 2011

California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

To Whom It May Concern:

The University of the Pacific is pleased to submit the enclosed proposal on the Economic Sustainability Plan for the Sacramento-San Joaquin Delta. Pacific's three campuses in Stockton, Sacramento, and San Francisco surround the Delta and it forms part of our institutions identity. The Delta's unique cultural and environmental resources are the subject of many scholarly investigations by Pacific's faculty, they are also the focus of learning in many of Pacific's classrooms and they form part of a range of Pacific's community engagement activities. Our team is led by Dr. Jeffrey Michael and Dr. Thomas Pogue in the Business Forecasting Center at the Eberhardt School of Business, and also includes the Natural Resources Institute in the School of Engineering and Computer Science and the Jacoby Center for Public Service and Civic Leadership in the College of the Pacific. To bring additional expertise and assure timely completion of the project, Pacific is partnering with experts from Berkeley Economic Consulting, the Dangermond Group, Economic and Planning Systems, Mogavero Notestine Associates, and Sapper West. We believe this team has an ideal combination of skills, capacity and familiarity with the Delta to undertake this critical project.

This proposal is similar to our December 2010 submission for the original RFP, but has been strengthened in several significant ways. For example, Dr. Robert Pyke has been added to the Sapper West team that is providing engineering support to our flood control work and other areas connected to Delta levees. We have strengthened the public outreach plan, and added establishment level data to add depth and geographic detail to our economic base and impact analysis. Although it is impossible to fully convey the depth and quality of analysis within the five-page plan of work, our proposal demonstrates that we are addressing all the required elements of the RFP in a thorough way. If awarded the contract, we will work cooperatively with the Delta Protection Commission to refine the scope of work to produce the highest quality product.

The Business Forecasting Center (BFC), led by Dr. Jeffrey Michael as Principal Investigator and Dr. Thomas Pogue as project manager, will be overseeing the day-to-day operation of the project as well as integration of recommendations and analyses of other studies and initiatives informing and impacting the Plan. Pacific's BFC produces quality economic forecasts and reports for government and private business in and around the Delta region. The Natural Resources Institute led by Margit Aramburu and the Jacoby Center led by Bob Benedetti will be coordinating and implementing the public outreach program. Pacific's NRI is a unique institute within Pacific designed to serve as a neutral forum for debate of critical, and controversial, natural resource issues. The Jacoby Center is focused on facilitating civic engagement by strengthening the contribution of governmental and non-profit organizations by serving as crossroads where stakeholders connect.

Sincerely,

Jin K. Gong, Ph.D.
Assistant Provost for Research & Collaborative Programs

# Work to be Performed

Our proposal for an Economic Sustainability Plan for the Sacramento-San Joaquin Delta brings together a team with an understanding of the critical economic issues facing the Delta and the expertise and credentials to provide high-quality, high-impact analysis. University of the Pacific researchers, led by the Business Forecasting Center, will lead and coordinate the plan development with sub-contractors providing expertise in key areas. The sub-contractors include: Berkeley Economic Consulting, Economic and Planning Systems, Mogavero, Notestine and Associates, Sapper West, and The Dangermond Group.

A critical piece of the work is a community outreach program that will inform all components of the analysis. The outreach program will be led by the University of the Pacific's Natural Resources Institute, Pacific's Jacoby Center, and Sapper West. In the early stages of the study, the outreach will include targeted focus groups to collect information on specific areas (e.g. agriculture, recreation, local government finance). As the study progresses, there will be four comprehensive, public outreach events throughout the Delta and a Spanish-language outreach programs. The specifics of the outreach plan are described in the Work Plan, Section D, and the results of the outreach program will be described in an Appendix to the final report. Given the importance for outreach in a project of this nature we include some optional additions to outreach activities that are described in the Work Plan.

We envision the body of the final report will follow the outline in Attachment A which indicates the team member having primary responsibility for each component listed in italics. Following the outline in Attachment A, the rest of this section provides more details on the specifics of each part of the analysis.

## I. Introduction

The introductory chapter will describe the economic base and key drivers of the Delta economy, analyze the economic linkages between the primary and secondary zones of the Delta and the surrounding communities, and set the stage for the rest of the report. It will draw heavily from the recently completed Framework Study, and extend the analysis to provide a foundation for the Economic Sustainability Plan. It will also clearly distinguish the unique roles and traits of the various geographic sub-areas within the Delta and their relative positions within the broader economy.

In addition to providing a conceptual overview of the Delta economy, the Economic Base Analysis will focus on prospects facing existing and emerging economic clusters. A primary goal of this analysis will be to understand how certain critical industry sectors might best contribute to improved economic sustainability, are affected by "exogenous" variables such as State and Federal policies, and how these policies might be adapted over time to support appropriate expansion and diversification of the Delta economy, while protecting the region's quality of life for residents of Legacy Communities.

## II. Study Context: Current Policy and Planning Initiatives and Other Research

The second chapter will provide additional background and context. The November 2009 Delta legislative water package tasked the Delta Protection Commission with developing an Economic Sustainability Plan. The 2009 legislation also created a new agency, the Delta Stewardship Council, and charged it with adopting a Delta plan by the end of 2011 that is expected to draw heavily from the Bay Delta Conservation Plan (BDCP). The legislative package anticipated that the BDCP would be complete by the end of 2010, but only an incomplete draft of the complex plan is currently available. The compressed time frame for this and other plans and reports results from the ambitious timelines in the 2009 legislation.

The changes envisioned in the Bay Delta Conservation Plan including a new water conveyance system and the transformation of agricultural land to habitat will have a substantial impact on the Delta economy. This chapter will describe the key components of the draft BDCP, as well as some alternative proposals (such as the sizing of water conveyance) that continue to be analyzed within the BDCP. The chapter will also discuss anticipated environmental changes such as sea-level rise that could impact economic activity in the Delta regardless of the adoption of the BDCP. Thus, this chapter will frame the environmental changes and policy options that will drive the technical analysis in Chapters III, IV, and V, and shape planning and policy recommendations in Chapter VI.

Another substantial part of this chapter will be a detailed review of the economic analysis in key reports that are supporting the policy and planning processes. The reports to be analyzed include the 2008 study by the Public Policy Institute of California (PPIC), *Comparing Futures for the Sacramento-San Joaquin Delta*, and a new PPIC report, *Transitions for the Delta Economy,* anticipated to be released in Winter 2011. In addition, we will review the economic analysis and financial viability of draft reports and plans from the BDCP, and Delta Stewardship Council. The reviews will discuss the methods, data, and conclusions of the analysis for broader policy objectives; and discuss the implications for the Delta regional economy.

## III. Key Assets and Infrastructure: Current Status, Future Risks, Investment Needs

### Infrastructure: Flood Control and Public Safety

The Project Team will conduct a general review of the infrastructure capacity and limitations, including flood control (described further below) transportation (e.g., distance and time to major markets, via highway, rail, air), and utilities (e.g. energy, water, wastewater, waste disposal, and telecommunications) based on existing studies and interviews with service providers and end-users. A key goal will be to identify priorities for flood control and other public safety related improvements that serve existing communities and are vital to targeted industries such as recreation (i.e., fishing, boating, hiking) and agriculture.

With the guidance of our consultant engineers, the Team will identify the most important flood control investments in the Delta and the range of costs necessary to complete them. Priorities will be established based on risk assessment, economic implications of floods, and the types and locations of existing and new economic activities concentrated in key locations within the Delta. In addition, the findings from this task will both inform and be informed by the infrastructure and public services financing task described below.

### Legacy Communities: Planning for Sustainability

By observing Delta communities from a fresh vantage point, we propose to develop a strategic action program for each of the Legacy Communities of Clarksburg, Courtland, Isleton, Locke, Ryde, Hood and Walnut Grove. (Note: Given the compressed time frame of the project, it may be infeasible to develop a complete program for every individual legacy community.) Programs would be consistent with local plans and reflect the adaptive nature of the Delta. The strategic action programs will identify specific implementation actions, responsible partners and implementers, funding requirements, potential funding sources, and priority projects/programs.

The initial tasks of the analysis will include a review of key regulatory and planning documents including, but not limited to, the Sacramento and Yolo County General Plans, Zoning Ordinances, economic development plans/strategies, Housing Elements, and SACOG Blueprint/Greenprint (Rural-Urban Connections Strategy). Using the Dun and Bradstreet database we will derive enterprise specific sectoral profiles of each community, then we will identify, inventory and map potential opportunity sites throughout the study area. We will work with public agency staff and other members of the study team to identify infrastructure constraints and carrying capacity, and annotate flood zones to identify development constraints.

Drawing from interviews and other sources, the analysis will develop a vision and qualitative historical and community character narrative for each Legacy Community. Aspects of the narrative(s) will include strategies for economic development and land use, habitat creation and/or enhancement, tourism, recreation, preservation and enhancement of existing community character and stewardship as it pertains to energy and land use, as well as the notion of creating 'legacy' as a brand that can aid in economic development and enhanced regional community identity. Based on this information and input from other members of the study team, MNA will prepare an Existing Conditions and Opportunity memorandum for each community that would undergo a critical review and comment exercise by the Legacy Communities Focus Group.

Finally, we will prepare a draft Strategic Action Plan for each community. The Plans will be tailored to specific community context and economic opportunities. Elements of the Action Plan could include: historic preservation, urban design projects, infill development opportunities, recreational facilities, infrastructure improvements, housing development, rezoning, site assembly, marketing, business recruitment / retention, business organization formation, coordination efforts with other communities or organizations, and other elements focused on the specific needs of each community.

### People of the Delta: Socio-economics and Workforce

We will analyze socio-economic issues and trends within the Delta using Census and other data and their implications for economic sustainability. An assessment of the key attributes and unique capacities of the Delta workforce is one of the most important phases of the planning process. Using detailed geographic data on enterprises from the Dun and Bradstreet database, we will use Geographic Information System (GIS) software to identify location specific employment in the primary and secondary zones of the Delta. We will also utilize detailed socio-economic data from the 5-year American Community Survey and available data from the 2010 Census to give a highly detailed and reliable analysis of the Delta's population and workforce. This analysis will account for traditional factors such as employment/self-employment levels by occupation, commute patterns, and education (including access to higher ed. and vocational training) as well as more unique considerations such local entrepreneurship, lifestyles, and cost of living. The results of this analysis and the scenarios developed in Chapter II will be used by the team to consult with stakeholders across the Delta in order to identify specific recommendations regarding what amount of jobs is the "right amount" for the region, what the composition of these jobs should be, and how to attract them.

## IV. Key Economic Sectors: Current Status, Future Projections, Opportunities and Risks

### Agriculture

Berkeley Economic Consulting will undertake research necessary to describe current and projected future conditions in Delta agriculture, and the effects of the BDCP and other policies on Delta agriculture. To accomplish this objective, BEC researchers will compile and organize a geospatial database of cropping choices in the Delta using a variety of state sources, and other datasets. Based on this information, BEC researchers will estimate the parameters of an econometric model of agricultural land allocation in the Delta. The model will uncover fundamental patterns of crop choices in the area, and describe how these patterns adjust in response to changes in parameters such as output prices, input prices, weather, and the like. The model will also uncover spatial patters in the data that manifest the influence of microclimate, distance to roads and other features such as soil quality.

The BEC-developed model of agricultural land allocation and the cropping data on which it is based, will facilitate analysis of several important policy questions. The model can assist in describing the kinds of agricultural impacts expected from changes in the configuration of the Delta. Because the model is spatially explicit, it can generate predictions of the most likely location of future agricultural activities. Such precision is essential for understanding the effects of flooding particular islands, or making other kinds of changes to the structure of the Delta.

There are four major steps in the agricultural modeling described here: construction of the baseline and expected trends, modeling of past cropping choices, developing forecasts and scenarios, and measuring plan effects. BEC researchers will compile available information on agricultural land allocation in the Delta. Sources consulted include annual reports of county agricultural commissioners, the Pesticide Use Report database compiled by the California Department of Pesticide Regulation, DWR aerial surveys, NOAA aerial photographs, and others. BEC will place the available information into a GIS database. We will also construct trends and summarize historical information. Based on the historical cropping information in the Delta, BEC will estimate the parameters of a land allocation model most likely using a multinomial logit or Markov model. BEC has successfully implemented such models for SACOG and Yolo County.

The econometric model of land allocation in the Delta will be used, along with other sources, to forecast future conditions. Working with agricultural interests in the Delta, BEC will construct several likely scenarios for the evolution of Delta agriculture. The land allocation model will enhance the spatial precision of these scenarios, allowing us to locate future agricultural activities in the Delta based on historical cropping associations. Finally, BEC researchers will be able to estimate the effects of Delta plans on the region's agricultural economy. BEC will estimate the acreages of crops affected, and will use UC Cost & Return studies to estimate the effects on related input markets. These effects will then be transmitted to other project researchers who are studying the regional economy of the Delta to understand the broader implications of changes in Delta agriculture.

### Tourism & Recreation

Recreation and Tourism in the Delta is driven by its miles of meandering waterways, its agriculture covered islands, and its unique small communities. The Dangermond Group has performed six separate studies in and adjacent to the Delta over the past 20 years that provide an excellent foundation for further analysis. The two most recent are, a detailed boating facilities analysis and companion visitation projections completed in 2002, and an aquatic-based recreation Master Plan prepared in 2005. Our analysis will draw on these studies relative to water-based recreation, as well as our knowledge and research relative to the other recreation use categories occurring in the Delta, i.e. Land-based recreation, wildlife & habitat based recreation, urban edge recreation, and tourism based upon Delta-as-a-place. Other information that we will utilize includes the Dun & Bradstreet database, the University of California's Agricultural Tourism Directory, and Department of Motor Vehicles' Vessel Registrations. Plans and data will also be gathered from State and local parks agencies, State and Federal wildlife agencies, and non-profit and for-profit operating entities. These diverse sources will be compiled and organized using GIS to illustrate and estimate geographically specific historical tourism and recreation supply and demand in the Delta.

The baseline data will then be combined and discussed with stakeholder focus groups across the Delta to refine and generate specific evaluation scenarios. Using our GIS database, economists from EPS and Pacific will work with The Dangermond Group to make projections regarding the demand and supply of tourism and recreation under these scenarios. This scenario analysis will require evaluating the emerging emphasis on habitat protection and restoration and how it contributes to recreation, such as hunting, wildlife viewing, and nature study, and also consider the potential impact of designating the Delta as a National Heritage Area. Throughout these projections other interdependent influences on the Delta as a recreational destination will be considered; these include, but are not limited to: public safety, infrastructure, legacy communities, and inter-connections with surrounding urban areas.

### Other Economic Sectors

While agriculture and recreation have been identified as the key drivers of the Delta economy, a comprehensive analysis must consider the contribution of all sectors and their future potential. Utilizing the location specific enterprise data available from the Dun & Bradstreet database and other complementary local data, our analysis will examine the economic role of the transportation industry, focusing on the Ports of Stockton and Sacramento, and the

potential growth of non-tourism, information based service sectors in the Delta economy. Finally, we will examine real estate and development opportunities. In some instances and locations throughout the Delta economic sustainability may involve expanded development of residential and job generating land uses, particularly in and around key Legacy Communities. We will assess the feasibility of various types of real estate development at potential sites and/or districts based on market supply and demand dynamics, and development feasibility including flood control considerations. Emphasis will be placed on working with the project team to maximize the utility of past and future investments in flood control, other infrastructure, and community development efforts throughout the Delta.

## V. Economic and Fiscal Impact and Financial Analysis of Projected Changes

Key sectors such as agriculture and recreation bring outside dollars into the local economy that in turn support input suppliers and service sectors. Thus, simple measures of sector output such as crop revenues, do not fully capture the ways an industry support jobs and income in the local economy and surrounding communities. We will perform economic impact analysis using an input-output model, IMPLAN 3, to create a detailed model of the Delta economy and its linkages to surrounding economies that is calibrated to local data . The model will project jobs and income supported by key sectors, and how potential changes in the Delta could affect employment, income and other key measures of the regional economy.

A sustainable economy depends on effective deployment of financial resources and sound fiscal management. To achieve this, EPS will identify the availability and viability of financial resources and mechanisms necessary to fund the infrastructure investments identified during the planning process. This will include an analysis of local, State, and federal sources and the required steps and relative likelihood of obtaining each. EPS will also evaluate how the potential changes to the Delta economy and land use (increased recreation, agriculture, land moved to habitat, etc.) positively and negatively affect local budgets from both a cost and revenue side. The analysis will distinguish between on-time capital investments and the on-going operation and maintenance necessary to achieve the sustainability goals outlined in the Plan. EPS will also recommend potential solutions for resolving any financial shortfalls that are identified. This will be an iterative task with the appropriate financial and fiscal measures crafted based on on-going assessment of feasibility, capacity, and targeted investment opportunities.

## VI. Integration and Recommendations

In the final chapter, the team will come together to draw an integrated set of conclusions and recommendations for planning and policies. The final chapter will include three key components. First, we will identify key indicators to measure the Delta's economic sustainability that can be tracked over time. After the completion of the project, the University of the Pacific Business Forecasting Center will use the indicators to develop a "Delta Economic Sustainability Scoreboard" which will be updated annually as a free, public service.

Most importantly, the final chapter will also feature two sets of research-based recommendations and findings derived from the analysis in the previous sections. We will present a set of key findings about the probable impact of various policy scenarios on the Delta economy that can be utilized by the Delta Stewardship Council in developing the Delta Plan. Finally, the report will conclude with a recommended set of economic development strategies that Delta communities can use to enhance their economic prosperity and sustainability of the Delta.

## Proposed Outline for the Economic Sustainability Plan

I. Introduction: The Delta Economy *(Pacific BFC, EPS support)*

   a. Economic Base and Key Drivers

   b. Economic Linkages between Delta zones, and surrounding communities

   c. Study Outline and Organization

II. Public Policy and Planning Initiatives *(Pacific BFC, BEC support)*

   a. The potential impacts of current policies on the Delta

   b. Review of key studies and reports informing current planning process

   c. Probable scenarios resulting from policies and planning initiatives

III. Key Assets and Infrastructure: Current Status, Future Risks, Investment Needs

   a. Flood Control and Public Safety *(Sapper West, EPS support)*

   b. Sustainable Legacy Communities *(Mogavero and Notestine, EPS & Sapper West support)*

   c. People of the Delta: Socio-economics and Workforce *(EPS with BFC support)*

IV. Key Economic Sectors: Current Status, Future Projections, Opportunities and Risks

   a. Agriculture *(BEC, Pacific BFC support)*

   b. Recreation and Tourism *(The Dangermond Group, EPS & Pacific BFC support)*

   c. Other Sectors (transportation, development, services) *(EPS and Pacific BFC)*

V. Impact and Financial Analysis of Projected Changes

   a. Economic Impact *(Pacific BFC, EPS support)*

   b. Fiscal Impact *(EPS, Pacific BFC support)*

VI. Integration and Recommendations *(Pacific BFC leads, with entire team contribution)*

   a. Planning and Economic Development Recommendations for the Delta

   b. Recommendations for state and federal policies and plans impacting the Delta

# Resumes/References

## Key Project Personnel

| Name | Title | Organization/Unit |
|---|---|---|
| Margit Aramburu | Director | Pacific's Natural Resources Institute |
| Robert Benedetti | Director | Pacific's Jacoby Center |
| Mike Conrad | President | Sapper West, Inc |
| Pete Dangermond | President | The Dangermond Group |
| Jeffrey Michael | Principal Investigator/ Director | Pacific's Business Forecasting Center |
| Jason Moody | Principal | Economic & Planning Systems |
| John Nicolaus | Planner/Principal | Mogavero Notestine Associates |
| Mike Notestine | Principal | Mogavero Notestine Associates |
| Thomas Pogue | Project Manager/ Assistant Director | Pacific's Business Forecasting Center |
| Robert Pyke | Consulting Engineer | Independent subcontractor to Sapper West |
| Benjamin Sigman | Vice President | Economic & Planning Systems |
| David Sunding | Principal | Berkeley Economic Consulting |
| Karin Winters | Vice President | The Dangermond Group |
| David Zehnder | Managing Principal | Economic & Planning Systems |